Boost the power capability and save space in Home Appliance applications

The new SLLIMM™-nano 2nd series of IGBT- and SJ MOSFET-based intelligent power modules fully satisfies space saving needs and features required in power applications working at up to 500 W. The SJ MOSFET-based products, with a $R_{ds(on)}$ up to 1 Ω, are the ideal for fridge compressors and all applications working at low load. The IGBT-based products, are ideal for full load applications, addressing also low-power washing machines.

**KEY FEATURES**
- 600 V SJ-MOSFET and IGBT (planar and TFS) based IPMs
- Current capability from 1 up to 8 A at 25°C
- Optimized voltage drop in conduction
- On-board NTC thermistor
- Slots for heatsink screws
- Dual-inline or zig-zag leads
- With and without stand off
- UL recognized 1.5 kVrms: UL 1557, file E81734

**KEY BENEFITS**
- Higher robustness and reliability
- Package compactness and thermal performance
- Embedded protection inside the module
- Plug’n Play solution
- Easily driven by microcontroller

**MAIN APPLICATIONS**
- Fans
- Dishwashers
- Compressors
- Pumps
- Refrigerators
- Washing machine
To highlight the advantages of our IPMs, we compared their performance under two different conditions corresponding to a fridge compressor and washing machine.

**Figure 1** shows that our SJ-MOSFET IPM works better than IGBT IPM up to 100 W, having a lower delta temperature ($T_{\text{case}} - T_{\text{amb}}$), thus maximizing efficiency at low loads.

**Figure 2** shows a benchmark with our IGBT-based IPM vs the main competitor, revealing a better performance across the entire frequency range typical of washing machine conditions.

### NOMENCLATURE

<table>
<thead>
<tr>
<th>Part number</th>
<th>Switch type</th>
<th>BV</th>
<th>ICN</th>
<th>$R_{\text{DS(on)}}$ max @ $I_{\text{CW}}$</th>
<th>$V_{\text{CESAT}}$ typ @ $I_{\text{CN}}$</th>
<th>$t_{\text{ON}}$ min</th>
</tr>
</thead>
<tbody>
<tr>
<td>STIPQ3M60T-HZ/L</td>
<td>SJ-MOSFET</td>
<td>3 A</td>
<td>1.6 Ω</td>
<td>1 μs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STIPQ5M60T-HZ/L</td>
<td>IGBT Planar</td>
<td>5 A</td>
<td>1 Ω</td>
<td>1 μs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STGIPQ3H60T-HZ/L(S)</td>
<td>IGBT Planar</td>
<td>3 A</td>
<td>2.15 V</td>
<td>1.5 μs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STGIPQ5H60T-HZ/L</td>
<td>IGBT Planar with lower dead time</td>
<td>3 A</td>
<td>2.15 V</td>
<td>1 μs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STGIPQ5C60T-HZ(LS)</td>
<td>TFS IGBT</td>
<td>5 A</td>
<td>1.65 V</td>
<td>1.5 μs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STGIPQ8C60T-HZ</td>
<td>TFS IGBT</td>
<td>8 A</td>
<td>2 V</td>
<td>1 μs</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**STGIPQ5M60T-Hx (Super-Junction MOSFET)**

**STGIPQ5C60T-Hx (Trench Field Stop IGBT)**

**STGIPQ8C60T-HZ**

**STGIPQ5Y60T-Hx**

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Order code: FLSLLIMM(NANO)20420

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